What Is Claimed Is:

1. An isolated DNA molecule that encodes a NIM1 protein involved in the signal transduction cascade leading to systemic acquired resistance in plants.

2. The isolated DNA molecule of claim 1, wherein said DNA molecule hybridizes under the following conditions to clone BAC-04, ATCC Deposit No. 97543: hybridization in 1%BSA; 520mM $NaPO_4$, pH7.2; 7% lauryl sulfate, sodium salt; 1mM EDTA; 250 mM sodium chloride at 55°C for 18-24h, and wash in 6XSSC for 15 min. (X3) 3XSSC for 15 min. (X1) at 55°C.

3. The isolated DNA molecule of claim 1, wherein said DNA molecule is comprised within clone BAC-04, ATCC Deposit No. 97543.

4. The isolated DNA molecule of claim 1, wherein said DNA molecule hybridizes under the following conditions to cosmid D7, ATCC Deposit No. 97736: hybridization in 1%BSA; 520mM $NaPO_4$, pH7.2; 7% lauryl sulfate, sodium salt; 1mM EDTA; 250 mM sodium chloride at 55°C for 18-24h, and wash in 6XSSC for 15 min. (X3) 3XSSC for 15 min. (X1) at 55°C.

5. The isolated DNA molecule of claim 1, wherein said DNA molecule is comprised within cosmid D7, ATCC Deposit No. 97736.

6. The isolated DNA molecule of claim 1, wherein said DNA molecule is isolated from a dicotyledonous plant.

7. The isolated DNA molecule of claim 6, wherein said dicotyledonous plant is an *Arabidopsis* species.

8. The isolated DNA molecule of claim 1, wherein said DNA molecule is isolated from a monocotyledonous plant.

9. The isolated DNA molecule of claim 1, wherein said NIM1 protein comprises the amino acid sequence set forth in SEQ ID NO:3.

10. The isolated DNA molecule of claim 1, wherein said DNA molecule hybridizes under the following conditions to the coding sequence set forth in SEQ ID NO:2: hybridization in 1%BSA; 520mM $NaPO_4$, pH7.2; 7% lauryl sulfate, sodium salt; 1mM EDTA; 250 mM sodium chloride at $55^{\circ}C$ for 18-24h, and wash in 6XSSC for 15 min. (X3) 3XSSC for 15 min. (X1) at $55^{\circ}C$.

11. The isolated DNA molecule of claim 10, wherein said DNA molecule comprises the coding sequence set forth in SEQ ID NO:2.

12. A chimeric gene comprising a promoter active in plants operatively linked to the DNA molecule of claim 1.

13. A recombinant vector comprising the chimeric gene of claim 12, wherein said vector is capable of being stably transformed into a host.

14. A host stably transformed with the vector of claim 13.

15. The host of claim 14, which is a plant.

16. The plant of claim 15, which is selected from the following: rice, wheat, barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea, chicory, lettuce, cabbage, cauliflower, broccoli, turnip, radish, spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum, cherry, peach, nectarine, apricot, strawberry, grape, raspberry, blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco, tomato, sorghum and sugarcane.

17. The plant of claim 15, wherein said NIM1 protein is expressed in said transformed plant at higher levels than in a wild type plant.

18. A method of conferring a CIM phenotype to a plant, comprising transforming the plant with the recombinant vector of claim 13, wherein said NIM1 protein is expressed in said transformed plant at higher levels than in a wild type plant.

19. A method of activating systemic acquired resistance in a plant, comprising transforming the plant with the recombinant vector of claim 13, wherein said NIM1 protein is expressed in said transformed plant at higher levels than in a wild type plant.

20. A method of conferring broad spectrum disease resistance to a plant, comprising transforming the plant with the recombinant vector of claim 13, wherein said NIM1 protein is expressed in said transformed plant at higher levels than in a wild type plant.

21. An isolated DNA molecule that hybridizes under the following set of conditions to the coding sequence set forth in SEQ ID NO:2: hybridization in 1%BSA; 520mM $NaPO_4$, pH7.2; 7% lauryl sulfate, sodium salt; 1mM EDTA; 250 mM sodium chloride at 55°C for 18-24h, and wash in 6XSSC for 15 min. (X3) 3XSSC for 15 min. (X1) at 55°C.

22. The isolated DNA molecule of claim 21, wherein said DNA molecule comprises the coding sequence set forth in SEQ ID NO:2.

23. The isolated DNA molecule of claim 21, wherein said DNA molecule encodes the protein set forth in SEQ ID NO:3.

24. A chimeric gene comprising a promoter active in plants operatively linked to the DNA molecule of claim 21.

25. A recombinant vector comprising the chimeric gene of claim 24, wherein said vector is capable of being stably transformed into a host.

26. A host stably transformed with the vector of claim 25.

27. The host of claim 26, which is a plant.

28. The plant of claim 27, which is selected from the following: rice, wheat, barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea, chicory, lettuce, cabbage, cauliflower, broccoli, turnip, radish, spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum, cherry, peach, nectarine, apricot, strawberry, grape, raspberry, blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco, tomato, sorghum and sugarcane.

29. A method of conferring a CIM phenotype to a plant, comprising transforming the plant with the recombinant vector of claim 25.

30. A method of activating systemic acquired resistance in a plant, comprising transforming the plant with the recombinant vector of claim 25.

31. A method of conferring broad spectrum disease resistance to a plant, comprising transforming the plant with the recombinant vector of claim 25.

32. A method of screening for a *NIM1* gene involved in the signal transduction cascade leading to systemic acquired resistance in a plant, comprising probing a genomic or cDNA library from said plant with the DNA molecule of claim 21.

33. An isolated DNA molecule that encodes a protein involved in the signal transduction cascade leading to systemic acquired resistance in plants, wherein the complement of said DNA molecule hybridizes under the following conditions to the coding sequence set forth in SEQ ID NO:2: hybridization in 1% BSA; 520mM $NaPO_4$, pH7.2; 7% lauryl sulfate, sodium salt; 1mM EDTA; 250 mM sodium chloride at 55°C for 18-24h, and wash in 6XSSC for 15 min. (X3) 3XSSC for 15 min. (X1) at 55°C.

34. The isolated DNA molecule of claim 33, wherein said DNA molecule is isolated from a dicotyledonous plant.

35. The isolated DNA molecule of claim 34, wherein said dicotyledonous plant is an *Arabidopsis* species.

36. The isolated DNA molecule of claim 33, wherein said DNA molecule is isolated from a monocotyledonous plant.

37. The isolated DNA molecule of claim 33, wherein said protein comprises the amino acid sequence set forth in SEQ ID NO:3.

38. The isolated DNA molecule of claim 33, wherein said DNA molecule comprises the coding sequence set forth in SEQ ID NO:2.

39. A chimeric gene comprising a promoter active in plants operatively linked to the DNA molecule of claim 33.

40. A recombinant vector comprising the chimeric gene of claim 39.

41. A recombinant host stably transformed with the chimeric gene of claim 39.

42. The recombinant host of claim 41, which is a transgenic plant.

43. The transgenic plant of claim 42, which is selected from the following: rice, wheat, barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea, chicory, lettuce, cabbage, cauliflower, broccoli, turnip, radish, spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum, cherry, peach, nectarine, apricot,

strawberry, grape, raspberry, blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco, tomato, sorghum and sugarcane.

44. Transgenic seed from the transgenic plant of claim 43.

45. A method of increasing SAR gene expression in a transgenic plant, comprising expressing the chimeric gene of claim 39 in the transgenic plant.

46. A method of enhancing disease resistance in a transgenic plant, comprising expressing the chimeric gene of claim 39 in the transgenic plant.